**Department of Water Resources Comments on**
**Central Valley Regional Water Quality Control Board**
**Draft Basin Plan Amendment for the**
**Control of Methyl and Total Mercury in the Delta**
**September 18, 2006**

The Regional Water Quality Control Board Draft Basin Plan Amendment conditionally prohibits the discharge of methylmercury into the Delta or its tributaries within the legal Delta after December 31, 2014 unless:

1) the fish tissue mercury objectives for the Delta are being met,
2) methylmercury allocations have been met,
3) the methylmercury discharge concentration is less than 0.06 ng/l, or
4) responsible parties have conducted methylmercury Characterization and Control Studies by December 2012 and implemented control actions in accordance with Regional Board adopted plans and schedules.

The following are the Department of Water Resources comments on the Draft Basin Plan Amendment for the Control of Methylmercury in the Sacramento-San Joaquin Delta Estuary (June 2006) and Draft Staff Report prepared by Central Valley Regional Water Quality Control Board (RWQCB).

## General Comments

The Phase 1 of the Total Maximum Daily Load (TMDL) implementation plan provides for a method of determining sources and control measures for methyl and total mercury in a particular watershed. However, the description of the Characterization and Control Studies in the Staff Report fails to mention the information gaps that exist related to mercury degradation processes in tributaries and within the Bay-Delta itself. As DWR noted in its October 2005 comments to the Draft TMDL document, large uncertainties exist in the loss side of the mercury mass balance equations for the Delta. The Characterization and Control Studies should attempt to address these uncertainties such that the effectiveness of mitigation measures can be properly determined.

The draft TMDL does not specify relationship equations between sulfate concentrations and methylmercury production. While some studies show there is a relationship, there is no way to know actual impacts without further study. Who will be doing these studies?

DWR is generally in support of an offset program. The concept needs to be thoroughly explored, however, as there are numerous scientific, management and policy issues to work through.

This TMDL would require significant resources to be expended for studies of even the smallest of projects, which would take resources away from efforts to

remove mercury from the system. The cost of studies for smaller projects is not only money, but time. Some small projects protect human health and property and should not be compromised by initiating studies on potential impacts that are likely to be insignificant.

The requirement regarding initiation of additional studies in the Delta subareas in December 2007 is not reasonable because multiple CALFED mercury studies are underway, and are anticipated to produce results in the next several years. According to the article *Mercury in Every Mix* (Science Action, May, 2005, p. 16) "…Scientists are quick to say they are still about five years away from knowing enough to give restoration managers any guidelines for minimizing mercury risks." It would be more appropriate for the RWQCB to set objectives and require supplemental studies to be planned in 2011. In this way, the studies could better focus on the areas of continued uncertainty.

It may not be feasible to meet the Draft Basin Plan Amendment timeline for study planning and initiation. It appears a substantial effort will be required to fund and organize collaboration, monitoring, and studies. The state's budget process alone requires two years to secure funds and staffing. Whether studies were performed by DWR staff or contracted out to others, four additional years may be required to move from successful funding to implementation of studies on the ground. This is consistent with recent timelines for pre-funded CALFED mercury studies to move from the Proposal Solicitation Package stage to fund disbursement and study implementation. This is also consistent with the time frame for an initiation and implementation of a new DWR program.

A more realistic schedule might be:

- June, 2007 – Submit Budget Change Proposal
- June, 2009 – Receive funding and possibly positions,
- December, 2009 – Staff up, advertise the Request for Proposal, coordinate with other responsible parties
- December, 2010 – Complete study plan selection internally or by Request for Proposal, submit plans to Regional Board
- June, 2011 – Begin studies, and/or contract process
- December, 2011 – Fund contracted studies
- June, 2013 – Have initial results
- June, 2015 – Submit final results to Regional Board

## Flood Conveyance Flows

The Draft Basin Plan Amendment proposes to require parties responsible for flood conveyance projects to coordinate with wetland and agricultural landowners to characterize existing methylmercury discharges to open waters from lands immersed by managed flood flows and develop control measures. According to the Draft TMDL Staff Report, changes in flood conveyance, salinity standards or flow management practices may increase methylmercury production. If this

occurs, the SWRCB will require responsible agencies to conduct studies and develop management plans to reduce methylmercury production. The additional cost of conducting these studies and management plans will detract from the local and state funds available to improve flood protection and conveyance. Would the Regional Board work with DWR to secure funding for these studies and other compliance efforts?

The board needs to clarify how changes in conveyance will be regulated as well as the size and scope of changes that might be regulated.

- Projects with insignificant effects. Current levee improvement projects along the American and Sacramento River tributaries are designed to bring levees to a height and condition that was established prior to the limitation on mercury concentrations and to remove sediment to restore design capacity. Are existing projects, maintenance and repair efforts that do not change the system but restore it to its design functionality subject to requirements to assess and restrict mercury loads ? Does existing work constitute a 'change in flood conveyance' as mentioned in the draft basin plan amendment? Does 'change' refer to changes by DWR actions rather than natural events? The text is not explicit in this regard. Is there a need to characterize the mercury content of imported materials used for levee construction or repair work?

  Because their effects on total mercury and methylmercury loads seem likely to be insignificant, minor projects, such as small levee changes or small setbacks of levee alignments, and projects that have only infrequent effects, such as reoperation of reservoirs to better manage large but infrequent storms (50 year events—200 year events) should be exempt from pre- and post- project mercury evaluation. Is there a minimum level of dredging that invokes a monitoring requirement? For example if levee repair work on 10 feet of levee involves disturbing or manipulation of in situ and submerged soils to receive fill or rock will that be considered dredging in the context of methylmercury requirements?

- Flood Control Projects. The proposed TMDL may pose significant barriers to important flood control projects. For example, the Folsom Dam improvements, proposed to better protect Sacramento from floods, could be affected in several ways. Recent modeling efforts have shown that the modifications proposed to Folsom Dam are expected to universally reduce downstream water surface elevations. Therefore, no negative impacts are anticipated on methylmercury concentrations from changes in the duration and timing of inundation of the Yolo Bypass from the proposed modifications at Folsom.

  However, creation of a spillway at Folsom Dam will involve blasting and dredging of an approach channel within Folsom Reservoir under flooded conditions, which has the potential for increasing methylmercury loads.

Certain scenarios in the modification of Folsom Dam involve the temporary storage of upland excavation materials within the reservoir flood area, perhaps requiring these materials' evaluated as a potential as a mercury source. Other scenarios involve the borrow of materials from within a dry reservoir could affect methylmercury concentrations downstream if subsequent reflooding of borrow pits results in exposure of higher concentrations of mercury.

- Properly assigning responsibility. In almost all cases, DWR plays only a modest role in changing flood management in ways that affect the Yolo Bypass or Delta. DWR owns a small fraction of land in the Yolo Bypass, and controls only a single reservoir that influences discharges to it. Our principal role is to maintain some of the bypass' levees and the weirs discharging to it. Our role is even smaller in the Delta, where DWR's primary role is assisting local reclamation districts in the financing of levee improvements. We are unclear, therefore, about the basis for assigning responsibility to DWR for assessing impacts that occur when others' lands are inundated by floods that are regulated largely by reservoirs that are under the control of other agencies, such as the Army Corps of Engineers, rather than DWR.

    1. Flooding in bypasses. If future basin modeling shows that levee heights must be increased in an area and that levee modification will result in a change in the inundation regime of Yolo Bypass or other floodways then to what extent is DWR responsible to mitigate those impacts versus the landowner? What constitutes a sufficient level of 'coordination' between agricultural land owners and DWR as described in the document? How do agricultural practices such as disking, ripping, and tilling affect the mobilization of mercury and/or methylmercury? Is retirement of agricultural land in floodways a potential option for meeting mercury release objectives?

    2. Erosion of stream banks and levees. To what degree does DWR have responsibility to mitigate for mobilization of mercury in the natural process of erosion of stream banks inside project levees? Does DWR's responsibility change if erosion continues through a stream bank and into the levee profile? If DWR has any responsibilities under these scenarios, then what level of geotechnical/chemical exploration is required to determine the concentration of mercury in potentially erosive soils in either the levee or in the stream/floodway? Are stream banks considered non-point sources? Are eroding levees considered potential point or non-point sources? Does this characterization change when construction work begins on a levee?

**Cache Creek Settling Basin Mercury TMDL Comments**

The Draft TMDL Staff Report identifies DWR as one of the agencies responsible for the operation and maintenance of the Cache Creek Settling Basin (CCSB). The Draft TMDL proposes ordering DWR to increase the basin's efficiency in trapping sediment, and therefore the mercury bound to it, in order to reduce total mercury discharged from Cache Creek downstream to the Yolo Bypass and the Delta. Earlier CALFED studies identify more aggressive sediment removal, raising the weir, or expanding the settling basin as ways to increase the CCSB's sediment trapping efficiency.

Within the Draft Staff Report, DWR staff has identified several issues of concern:

- Mercury targets. Targets for total mercury reduction in kilograms (kg) are inconsistent in the report. On page BPA-6 a reduction by 53kg/yr, in footnote 21 on page 76 a reduction of 50 to 25 kg/yr, and on page 80 recommended reduction of 72 kg/yr. Based on previous studies of total mercury entering the Sacramento-San Joaquin Delta, we recognize a reduction by these amounts could reduce annual loads of total mercury entering the Delta from 8 to 40%. Since estimates of total annual loads vary widely, clarification of the total mercury reduction targets is needed to more realistically assess the value of CCSB changes.
- Raising CCSB weir early. One option the RWQCB staff propose to increase sediment trapping in the CCSB is to raise the weir height. Evaluation of raising the weir height should include assessment of any risks to the Cache Creek levees protecting Woodland from flooding. Increasing the weir height may increase flood stages in the CCSB or the duration at higher stages within the CCSB. Whether these changes may affect the stability of the CCSB's levees needs to be assessed.
- Feasibility of CCSB changes. Technically desirable changes in the CCSB's operation or management may be difficult to carry out for several reasons. The bulk of the land within the CCSB is privately owned, so that permission from these property owners or payments to them may be needed. In addition, because the CCSB is as a federally authorized project constructed for solely flood control purposes, changes to it that reduce its flood control benefits or add additional project purposes would require consent of the Corps of Engineers and, perhaps, the Congress. Such a change would likely require broad local consensus, which has been difficult to develop recently for other flood control projects in the Woodland area.
- Compliance dates for the CCSB. Compliance dates for the CCSB are unrealistic (see general comments). Difficulties in obtaining funds for studies or operational changes or with CEQA/NEPA or permits needed to change the CCSB could further delay any feasible implementation.
- Offset program. Linking improvements in CCSB mercury management to a cap-and-trade offset program for other mercury discharge increases may seem desirable. But an offset program may not prove feasible for a

wide variety of market, administrative, or other reasons. Among these might be the need for DWR to bank any mercury credits generated through CCSB changes for its own projects or those of other state agencies so that they may be unavailable to offset increased discharges by third parties.

**Water Management-South Delta Improvement Program Gate Operations**

The proposed operations for the permanent operable gates under South Delta Improvement Program (SDIP) were conceived in part to address a TMDL for Low Dissolved Oxygen in the Stockton Deep Water Ship Channel. These operations would change water circulation in the south Delta such that instead of moving San Joaquin River water directly into the south Delta, more San Joaquin River water would move down through Stockton and into the central Delta. If, as the Mercury TMDL suggests, San Joaquin River water is not desired in the Central Delta, then the Mercury TMDL may be in conflict with the Dissolved Oxygen TMDL. Construction of the permanent gates will provide the facilities to help address routing of water that is desired for the benefit of either TMDL, but the desired operation needs to be decided upon the most degraded water quality situation. These operations will also need to be balanced with other water quality parameters being imposed on the projects by water rights permits and fishery agencies. Operations will need to be determined with input from all of the competing interests.

**Dredging**

Dredging is important to many things in the Delta such as: other water quality criteria (e.g., maintaining dissolved oxygen levels), navigation, flood control, water supply and levee stability. The adoption of a TMDL that is too stringent could limit dredging in the Delta. The relative benefits of dredging needs to be evaluated in the TMDL process.

The required monitoring of methylmercury from dredge spoil settling ponds will increase dredging costs. Of greater importance than cost is the recommendation that discharge be prevented if two or more samples exceed aqueous limits. What can be done short of eliminating discharge to reduce methylmercury such that it is within aqueous standards? Has the RWQCB staff considered any methods of addressing this situation?

The Draft Basin Plan Amendment states:
“There shall be no net increase in methyl and total mercury loads from dredging activities in Delta waterways. Clean Water Act 401 Water Quality Certifications shall include the following conditions:…
4. Ensure that disposal of dredged material with average total mercury concentrations greater than 0.2 mg/kg (dry weight, fines < 63 microns), is protected from erosion by 100-year precipitation or flow conditions.”

The Basin Plan Amendment should specifically identify examples of where the dredge spoils could be placed within the 100-year floodplain, such as on the back side of levees.

**Agricultural Lands and Wetlands**

DWR is presumed to be a discharger of methylmercury into the Delta by virtue of water and land management. What are the criteria for determining the responsible party in water and land management activities? DWR owns farmland (e.g. Sherman Island, Twitchell Island, Grizzly Island, Mokelumne/Cosumnes) and wetlands (e.g. Yolo Bypass). DWR and partners have plans to create additional wetlands and to shift some Delta agriculture toward rice cultivation to reduce subsidence. It is unclear whether application of water from a new source, crop conversions, or both, would be potential "new sources of methylmercury from agricultural lands" subject to regulation. Both current and possible future management actions are all subject to the Draft Basin Plan Amendment to the extent that they result in discharge of methylmercury.

To make discharge limits more reasonable, language in the Draft Basin Plan Amendment corresponding to that on page 2, paragraph 2 under Agricultural Lands and Wetlands heading of *Excerpts that may be applicable to the Department of Water Resource* needs to be revised to read "…discharge methylmercury concentrations must be less than or equal to the source water methylmercury concentrations…" This is consistent with a "no net increase" policy, without unduly burdening irrigators.

Some provision for de minimis exemptions would be appropriate, especially for small acreages, or "passively managed" lands.

Several questions about how the Draft Basin Plan Amendment would be applied include:

- If land is leased for agriculture, who is responsible for potential methylmercury discharge, the irrigator or the land owner?
- Is Department of Health Services regulating methylmercury exposure?
- Will the costs, as well as the benefits, of restricting agricultural and wetland management practices be considered? Operations to improve the environment by minimizing methylmercury likely conflict with efforts such as the Pelagic Organism Decline work to improve the environment by managing for habitat and food chain relationships.

The development of wetlands in the Delta is a critical component to CALFED's Ecosystem Restoration Program but the potential for production of methylmercury in these wetlands might limit construction of these wetlands. Under the proposed regulations, the many benefits to the aquatic and terrestrial environments associated with these potential wetlands may therefore never be realized. The relative benefits of creating wetlands needs to be evaluated in the

TMDL process. Tidal restoration projects have been identified as potential contributing factors to stabilization of the Delta ecosystem. The TMDL may be in direct conflict with fisheries restoration needs for pelagic and anadromous fish species.

**Tributary Watersheds**

The methylmercury TMDL for the Delta has significant implications for upstream tributary watershed stream restoration activities. DWR is anticipating a new 50-year license from the Federal Energy Regulatory Commission in 2007 for the Oroville Facilities that will likely require numerous restoration actions in the Feather River including gravel augmentation, in-stream channel construction, and re-configuration of river banks to restore floodplain function, etc., in large part for the benefit for the threatened spring-run Chinook and steelhead. Use of the gold mining tailings as the available source of gravels for these actions will raise the methylmercury containment issue.

DWR will be required to implement restoration actions in a timely manner as dictated FERC deadlines. Has the RWQCB staff considered what treatment or control measures will be suitable to address the methylmercury issues DWR will face in the Feather River? Has the staff determined what experimental design should be used in characterization studies to determine whether significant levels of mercury exist in the mine tailings? Is there a risk analysis that can be done to determine whether control measures are needed? Regulatory requirements should be equitable for both the agencies implementing restoration actions and the commercial gravel mining companies because DWR may utilize the services of the mining companies to implement the projects. The benefits of restoring the river and floodplain function need to be weighed against the control measures that may be required.

The methylmercury TMDL process and Basin Plan Amendment for the Sacramento-San Joaquin River Delta Estuary have such significant implications for DWR activities in the Sacramento Valley and Delta that they should be discussed at the agency director level prior to the Draft Amendment going final and being taken to the Board for approval. DWR suggests that a meeting take place between the Executive Officer of the Regional Board, and the directors of DWR, Department of Fish and Game and the California Bay-Delta Authority.

DWR appreciates the opportunity to comment on this TMDL process. If there are any questions, or further clarification is required, please contact Heidi Rooks, Environmental Program Manager by phone at the DWR Division of Environmental Services at (916) 651-9585 or by email at hrooks@water.ca.gov.